AMENDMENTS TO THE CLAIMS

1. (Canceled)

2. (Canceled)

3. (Currently amended) An output apparatus for transforming and outputting bitmap data comprising:

a bitmap data storage unit for storing bitmap data before transformation;

a vectorization unit for producing first vector data by vectorizing at least one part of said bitmap data;

a data production unit for producing bitmap data after transformation based on an inverse function of a ~~certain~~ predetermined calculation, said bitmap data before transformation, and said first vector data; and

an output unit for outputting said bitmap data after transformation produced by said data production unit, said data production unit comprising:

an inverse transformation unit for producing second coordinate information by inversely transforming first coordinate information that specifies a target dot to be processed, using said inverse function of said ~~certain~~ predetermined calculation;

a color determination unit for determining a color of a position, if the first vector data is in a passing relationship with a dot represented by the second coordinate information, the color of the position specified by the second coordinate information being determined based on the position specified by said second coordinate information, ~~based on~~ said first vector data produced by said vectorization unit and a color of a dot on said bitmap data, and then setting up said color determined thereby for said target dot specified by said first coordinate information; and

a control unit for controlling so that said second coordinate information production by said inverse transformation unit and said dot color determination by said color determination unit can be performed on all dots on bitmap data to be outputted.

4. (Original) The output apparatus according to claim 3, wherein:

in a case where a line represented by said first vector data that was produced by said vectorization unit passes through a dot including a position specified by said second coordinate information,

said color determination unit determines in such a manner that if said position is placed above said line,

a color of a dot immediately above said dot including said position is determined as a color of said position, or if placed below said line,

a color of a dot immediately below said dot including said position is determined as a color of said position, and then sets up said color determined thereby for said target dot specified by said first coordinate information.

5. (Original) The output apparatus according to claim 3, wherein:

in a case where a line represented by said first vector data that was produced by said vectorization part passes through a dot including a position specified by said second coordinate information,

said color determination unit determines in such a manner that if said position is placed on a left hand with respect to said line, a color of a dot immediately on a left, adjacent to said dot including said position is determined as a color of said position, or if placed on a right hand, a color of a dot immediately on a right, adjacent to said dot including said position is determined as a color of said position, and then sets up said color determined thereby for said dot specified by said first coordinate information.

6. (Canceled)

7. (Currently amended) An output apparatus comprising:

a bitmap data storage unit for storing bitmap data before transformation;

a bitmap data acquisition unit for acquiring bitmap data from said bitmap data storage unit;

~~a jaggy elimination processing unit for executing processing of eliminating jaggies appearing on said bitmap data;~~

a transformation rule retention unit for retaining at least one bitmap data transformation rule that is composed of a pair of information on certain part of said bitmap data and information indicating vector data that forms an image after transformation of said certain part;

a data transformation unit for transforming part of said bitmap data according to said rule, checking whether or not the information on certain part of bitmap data obtained by the bitmap data acquisition unit matches the information on certain part of bitmap data retained by the rule retention unit; and, if matched

replacing the information on certain part of bitmap data obtained by the bitmap data acquisition unit with a pair of information indicating vector data having an image resulting from the transformation of the certain part; and

an output unit for outputting data that is produced based on transformation results from said data transformation unit and processing results from said jaggy elimination processing unit.

8. (Original) The output apparatus according to claim 7, wherein: said certain part is in a rectangular shape having a size of n x m, where n and m represent a positive integer.

9. (Original) The output apparatus according to claim 8, wherein: said size is 3 x 3.

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Currently amended) A method for transforming and outputting bitmap data comprising the steps of:

producing first vector data by vectorizing at least one part of bitmap data before transformation that is stored;

producing bitmap data after transformation based on an inverse function of a ~~certain~~ predetermined calculation, said bitmap data before transformation, and said first vector data; and

outputting said bitmap data after transformation, said step of producing bitmap data after transformation comprising:

producing second coordinate information by inversely transforming first coordinate information that specifies a target dot to be processed,

using said inverse function of said ~~certain~~ predetermined calculation; if the first vector data is in a passing relationship with a dot represented by the second coordinate information,

determining a color of a position specified by said second coordinate information based on the position specified by said second coordinate information, said first vector data and a color of a dot on said bitmap data and a color of a dot on said bitmap data, and then setting up said color determined thereby for said target dot specified by said first coordinate information;

controlling so that said step of producing said second coordinate information and said step of setting up said color determined thereby for said target dot specified by said first coordinate information can be performed on all dots on bitmap data to be outputted.

18. (Currently amended) A method for outputting comprising the steps of:

acquiring bitmap data stored;

~~eliminating jaggies appearing on said bitmap data;~~

transforming part of said bitmap data according to a transformation rule having a pair of information on certain part of said bitmap data and information indicating vector data that forms an image after transformation of said certain part, said transforming comprising checking whether or not the information on certain part of bitmap data obtained by the bitmap data acquisition unit matches the information on certain part of bitmap data retained by the rule retention unit; and, if matched replacing the information on certain part of bitmap data obtained by the bitmap data acquisition unit with a pair of information indicating vector data having an image resulting from the transformation of the certain part; and

outputting data that is produced based on transformation results obtained in said data transformation step and processing results obtained in said jaggy elimination step.

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Currently amended) A computer program stored in a computer readable medium for ~~executing that enables a computer to execute~~ processing of transforming and outputting bitmap data, comprising the steps of;

producing first vector data by vectorizing at least one part of bitmap data stored thereon;

producing bitmap data after transformation based on an inverse function of a ~~certain~~ predetermined calculation, said bitmap data, and said first vector data; and

outputting said bitmap data after transformation, said step of producing bitmap data after transformation, comprising the steps of:

producing second coordinate information by inversely transforming first coordinate information that specifies a target dot to be processed,

using said inverse function of said ~~certain~~ predetermined calculation;

determining a color of a position specified by said second coordinate information based on said first vector data and a color of a dot on said bitmap data, and then

setting up said color determined thereby for said target dot specified by said first coordinate information; and controlling so that said step of producing said second coordinate information and said step of setting up said color determined thereby for said target dot can be performed on all dots on bitmap data to be outputted.

23. (Currently amended) A computer program stored in a computer readable medium for executing ~~that enables a computer to execute~~ the steps of:

acquiring bitmap data stored thereon;

~~eliminating jaggies appearing on said bitmap data;~~

transforming part of said bitmap data according to a transformation rule having a pair of information on certain part of said bitmap data and information indicating vector data that forms an image after transformation of said certain part, said transforming comprising checking whether or not the information on certain part of bitmap data obtained by the bitmap data acquisition unit matches the information on certain part of bitmap data retained by the rule retention unit; and, if matched replacing the information on certain part of bitmap data obtained by the bitmap data acquisition unit with a pair of information indicating vector data having an image resulting from the transformation of the certain part; and

outputting data that is produced based on transformation results obtained in said data transformation step and processing results obtained in said jaggy elimination step.

24. (Canceled)

25. (New) An output apparatus for transforming and outputting bitmap data according to claim 3, wherein bitmap data after transformation is directly based on an inverse function of a predetermined calculation, said bitmap data before transformation, and said first vector data.

26. (New) An output apparatus for transforming and outputting bitmap data according to any one of claims 3, 17, and 22,

wherein a predetermined calculation is a calculation for executing a predetermined transformation on the bitmap data acquired by the bitmap data acquisition unit.

27. (New) An output apparatus for transforming and outputting bitmap data according to claim 7, further comprising:

a jaggy elimination processing unit for executing processing of eliminating jaggies appearing on said bitmap data.

28. (New) A method for outputting according to claim 18, further comprising the step of

eliminating jaggies appearing on said bitmap data.

29. (New) A computer program stored in a computer readable medium according to claim 23, further comprising the step of:

eliminating jaggies appearing on said bitmap data.